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File: JPAB

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TITLE: HEAT CONTROL DEVICE FOR ARTIFICIAL SATELLITE

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INVENTOR-INFORMATION:

NAME

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NEC CORP N/A

APPL-NO: JP63035931

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ABSTRACT:

PURPOSE: To improve a radiation effect, by a method wherein a phase transition material having a low infrared radiation factor in a range having temperature higher than a transition temperature at which phase transition occurs and high infrared radiation factor in a range having temperature lower than the transition temperature is situated on the surfaces of a loading device and a heat sink to effect heat exchange.

CONSTITUTION: Each surface of the housing of an artificial <u>satellite</u> forms a heat sink 6, and a heat <u>control</u> device 7 is adhered on the inner surface of the heat sink. In a phase transition material, phase transition occurs at a transition <u>temperature</u>, and a metallic nature is created in an area having temperature higher than a transition <u>temperature</u> to increase a <u>radiation</u> factor, and an insulating substancelike nature is created in an area having temperature lower than the transition <u>temperature</u> to increase a <u>radiation</u> factor. The heat <u>control</u> device 7 is formed such that vanadium oxide being the phase transition material is formed in a filmy manner. A loading device 8 is positioned in the heat <u>control</u> device 7 in a manner that the whole surface thereof is positioned facing the heat <u>control</u> device 7. This constitution suppresses inflow of heat from the heat sink 6 on the sun 9 side, and performs high-efficient dissipation of heat to the heat sink 6 on the shade side located on the opposite side in a 180° arc.

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